FlyBy Math™ Alignment
Performance Standards
Mathematics

MEASUREMENT
Students will understand how to determine the volume and surface area of solid figures. They will understand and use the customary and metric systems of measurement to measure quantities efficiently and to represent volume and surface area appropriately.

M6M2. Students will use appropriate units of measure for finding length, perimeter, area and volume and will express each quantity using the appropriate unit.

Performance Standards	***FlyBy Math*™ Activities**
a. Measure length to the nearest half, fourth, eighth and sixteenth of an inch.	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
b. Select and use units of appropriate size and type to measure length, perimeter, area and volume.	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.

GEOMETRY
Students will further develop their understanding of plane and solid geometric figures, incorporating the use of appropriate technology and using this knowledge to solve authentic problems.

M6G1. Students will further develop their understanding of plane figures.

Performance Standards	***FlyBy Math*™ Activities**
d. Interpret and sketch simple scale drawings.	--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes. --Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
e. Solve problems involving scale drawings.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system. --Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.

ALGEBRA

Students will investigate relationships between two quantities. They will write and solve proportions and simple one-step equations that result from problem situations.

M6A1. Students will understand the concept of ratio and use it to represent quantitative relationships.

Performance Standards	*FlyBy Math™* Activities
	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.

M6A2. Students will consider relationships between varying quantities.

Performance Standards	*FlyBy Math™* Activities
a. Analyze and describe patterns arising from mathematical rules, tables, and graphs.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
b. Use manipulatives or draw pictures to solve problems involving proportional relationships.	--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes. --Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.
d. Describe proportional relationships mathematically using y = kx, where k is the constant of proportionality.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.
e. Graph proportional relationships in the form y = kx and describe characteristics of the graphs.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.

	--Use the distance-rate-time formula to predict and analyze aircraft conflicts.
g. Use proportional reasoning (a/b=c/d and y = kx) to solve problems.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Compare airspace scenarios for both the same and different starting conditions and the same and different rates.

DATA ANALYSIS AND PROBABILITY

Students will demonstrate understanding of data analysis by posing questions to be answered by collecting data. They will represent, investigate, and use data to answer those questions. Students will understand experimental and theoretical probability.

M6D1. Students will pose questions, collect data, represent and analyze the data, and interpret results.

Performance Standards	***FlyBy Math*™ Activities**
a. Formulate questions that can be answered by data. Students should collect data by using samples from a larger population (surveys), or by conducting experiments.	--Conduct simulation and measurement for several aircraft conflict problems.
b. Using data, construct frequency distributions, frequency tables, and graphs.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
c. Choose appropriate graphs to be consistent with the nature of the data (categorical or numerical). Graphs should include pictographs, histograms, bar graphs, line graphs, circle graphs, and line plots.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
e. Relate the data analysis to the context of the questions posed.	--Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions. --Predict outcomes and explain results of mathematical models and experiments.

PROCESS STANDARDS

Each topic studied in this course should be developed with careful thought toward helping every student achieve the following process standards.

M6P1. Students will solve problems (using appropriate technology).

Performance Standards	***FlyBy Math*™ Activities**
b. Solve problems that arise in mathematics and in other contexts.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

c. Apply and adapt a variety of appropriate strategies to solve problems.	--Use tables, graphs, and equations to solve aircraft conflict problems.
M6P3. Students will communicate mathematically.	
Performance Standards b. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.	***FlyBy Math™* Activities** --Predict outcomes and explain results of mathematical models and experiments.
d. Use the language of mathematics to express mathematical ideas precisely.	--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system. --Predict outcomes and explain results of mathematical models and experiments.
M6P4. Students will make connections among mathematical ideas and to other disciplines.	
Performance Standards c. Recognize and apply mathematics in contexts outside of mathematics.	***FlyBy Math™* Activities** --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
M6P5. Students will represent mathematics in multiple ways.	
Performance Standards a. Create and use representations to organize, record, and communicate mathematical ideas.	***FlyBy Math™* Activities** --Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
b. Select, apply, and translate among mathematical representations to solve problems.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
c. Use representations to model and interpret physical, social, and mathematical phenomena.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.